

REMARKS

Claims 1-31 remain pending in the application. Reconsideration is respectfully requested in light of the following remarks.

Section 103(a) Rejection:

The Office Action rejected claims 1, 2, 6, 12, 13, 15, 16, 18-26 and 28-31 under 35 U.S.C. § 103(a) as being unpatentable over “RaQ a fine low cost Web server alternative” by Kevin Railsback (hereinafter “Railsback”) in view of Gore, III et al. (U.S. Patent 4,602,164) (hereinafter “Gore”). Applicants respectfully traverse this rejection in light of the following remarks.

The cited art does not teach or suggest a single field replaceable unit wherein the processor, system memory, network interface, one or more drive controllers, and array of disk drives are packaged as a single field replaceable unit (FRU) so that the processor, system memory, network interface, one or more drive controllers, and array of disk drives are configured not to be individually field serviceable or field replaceable. In fact, both Railsback and Gore teach just the opposite. Railsback teaches the importance of scalability (p. 1) and describes that “the RaQ 3i has internal space for a second hard drive” and that “[o]ne major new feature of the RaQ 3i is the inclusion of a PCI slot” that “allows for even further system expansion” (p. 2). Thus, Railsback clearly stresses the importance of system expansion by being able to add (or swap) additional components in the field. Similarly, Gore teaches the field replacement of individual components in a system. Gore address the problem of replacing individual electronic components, or FRUs, within a system in a way that properly maintains the electromagnetic shielding of the system (Gore -- col. 1, lines 54-68, and col. 2, lines 3-7). The FRUs mentioned by Gore at col. 1, lines 42-48, are clearly individual components within a system. Thus, just like at p. 1, lines 11-25, in the Background of the Invention section of the present application, Gore describes the field replacement of individual electronic components of a system. In fact, at col. 5, lines 21-29, Gore teaches that components within his system

are “customer serviceable” and replaceable by a user. Likewise, Railsback stresses the field expandability of the RaQ 3i. Therefore, the cited art clearly teaches away from a single field replaceable unit in which a processor, system memory, network interface, one or more drive controllers, and array of disk drives are packaged as a single field replaceable unit (FRU) so that the processor, system memory, network interface, one or more drive controllers, and array of disk drives are configured not to be individually field serviceable or field replaceable.

In his Response to Arguments section beginning on p. 13 of the Final Action, the Examiner first attempts to rebut this argument by equating Applicants’ claim limitation to making the components integral and citing *In re Larson*, 144 USPQ 347 (CCPA 1965) for the proposition that to make integral is obvious. The Examiner’s argument is misguided for several reasons. First of all, making a processor, system memory, a network interface, one or more drive controllers, and an array of disk drives integral in a system does not require that these components not be individually field serviceable or field replaceable. A processor and system memory are clearly considered integral parts of any computer system in that they are essential components of a computer system. However, these components are often integrated in a computer system by using sockets or other types of connections that allow them to be field serviceable or field replaceable. Thus, even if it would have been obvious to make the components listed in Applicants’ claim 1 integral, that would still not mean that the components were not individually field serviceable or field replaceable. Note that in the case relied upon by the Examiner, *In re Larson*, the CCPA noted that the term “integral” may include combinations of parts. *Id.* at 349. In *Larson*, the CCPA did not equate “integral” with not being individually field serviceable or field replaceable. In fact, in *Larson* the CCPA considered a brake disk connected to a wheel hub by bolts to form an integral unit. Since the components in *Larson* were connected by bolts, they most likely would have been field serviceable or field replaceable. Thus, *Larson* clearly does not support the Examiner’s contention that making a processor, system memory, a network interface, one or more drive controllers, and an array of disk drives integral in a system is the same as making the components to not be individually field serviceable or field replaceable. The other meaning of “integral”

discussed in *Larson* is a “one piece construction” or “fabrication of the parts from a single piece of metal”. *Id.* at 349. This definition of integral clearly cannot apply to a processor, system memory, a network interface, one or more drive controllers, and an array of disk drives. Therefore, *In re Larson* clearly does not support the Examiner’s rejection.

Applicants also note the more recent Federal Circuit case *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983) where the court ruled that when the prior art teaches reasons for not making components integral, then an integral design is not obvious. Similar to the situation in *Schenck*, the relevant prior art here teaches the desirability of making one or more of a processor, system memory, a network interface, one or more drive controllers, and an array of disk drives in a system to be individually field serviceable or field replaceable. Thus, following the reasoning of *Schenck*, Applicants’ claim specifying that the processor, system memory, network interface, one or more drive controllers, and an array of disk drives are not individually field serviceable or field replaceable is not obvious.

On p. 14 of the Final Action, the Examiner also attempts to rebut Applicants argument by asserting that “Railsback does not say that problems have to be fixed in the field.” However, just because Railsback does not specifically address field serviceability or field replaceability does not mean that Railsback teaches a processor, system memory, network interface, one or more drive controllers, and an array of disk drives that are not individually field serviceable or field replaceable. In fact, the Examiner himself noted on p. 2 of the Final Action that this limitation is not explicitly taught by Railsback. Furthermore, as discussed above, the typical well known implementation for PCI slots used in Railsback for a network card or RAID array card is to provide for field serviceability and replaceability.

The Examiner also states that “[a] device can easily be constructed such that in order for one to add components, one must send the device back to the manufacturer, who will then add the components.” This statement amounts to nothing more than the

Examiner's own hindsight-based speculation. The Examiner is merely opining in hindsight on how Railsback's system could be manufactured. The Examiner's speculation is not supported by any cited art. Just because the prior art could be modified as the Examiner has suggested does not make the modification obvious without a suggestion of motivation in the prior art to do so. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Applicants' claim 1 recites a specific set of components that are not individually field serviceable or field replaceable. None of the cited references teach or suggest a single field replaceable unit in which this particular set of components are not individually field serviceable or field replaceable.

On p. 14 of the Final Action, the Examiner also refers to col. 1, lines 45-53 of Gore as teaching a single field replaceable unit. However, the individual field replaceable units in are Gore cards or other electrical components *within a data processing system*. Gore does not teach or suggest making the particular set of components recited in Applicants' claim 1 not individually field serviceable or field replaceable. **In fact, at col. 5, lines 21-29, Gore teaches that components within his system are "customer serviceable" and replaceable by a user.**

Furthermore, the cited art does not teach or suggest an array of disk drives coupled to said one or more drive controllers and configured to be organized into one or more RAID logical volumes and presented to client machines as one or more filesystems through said network interface; wherein said processor, said system memory, said network interface, said one or more drive controllers, and said array of disk drives are packaged as a single field replaceable unit (FRU) so that said processor, said system memory, said network interface, said one or more drive controllers, and said array of disk drives are configured not to be individually field serviceable or field replaceable. The Examiner refers to p. 2 of Railsback. The only mention of an array of disk drives and RAID in Railsback are the following two sentences on p. 2 as follows: "The latter [external SCSI connector] lets you connect external drive enclosures and even RAID arrays to the server." and "Another expansion possibility for this slot would be a RAID array card, allowing you to add larger and more reliable storage to the system." In

Railsback, a RAID drive array is an external add-on, not part of the RaQ 3i server. Thus, Railsback teaches just the opposite of packaging an array of disk drives with a processor, system memory, network interface, and one or more drive controllers as a single field replaceable unit (FRU) so that the processor, system memory, network interface, one or more drive controllers, and array of disk drives are configured not to be individually field serviceable or field replaceable.

In response to this argument, on pp. 14-15 of the Final Action the Examiner again refers to the RAID array card mentioned in Railsback. However, as discussed above, Railsback teaches adding an RAID array card in a PCI slot which would typically be field serviceable and/or replaceable. Furthermore, the RAID array card mentioned in Railsback is just the RAID controller card, not the disk drive array. As noted above, Railsback clearly refers to an externally connected RAID array. Thus, the Examiner's reliance on Railsback is completely misplaced.

In regard to claim 2, the cited art does not teach or suggest a motherboard, wherein said processor, said system memory, said network interface, said one or more drive controllers, and said array of disk drives are attached to said motherboard so as not to be field removable. The Examiner contends that these limitations of claim 2 are taught by Railsback. However, there is clearly no teaching in Railsback of a processor, system memory, network interface, one or more drive controllers, and array of disk drives being attached to a motherboard so as not to be field removable. As discussed above, Railsback clearly teaches the drive array to added by separate expansion, and there is no teaching in Railsback that the other components are not also field removable. Railsback stresses the importance of salability and expandability. Likewise, Gore teaches the field serviceability of individual electronic components of a system (Gore -- col. 5, lines 21-22). Thus, the cited art actually teaches away from Applicants' claim 2.

In response to this argument, the Examiner states on p. 15 of the Final Action that “[s]ince the unit disclosed in Railsback in view of Gore is a single field replaceable unit, the individual components must be attached to the motherboard so as not to be field

removable.” The Examiner appears to be relying on some sort of theory of inherency. However, “in relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.” *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). The Examiner clearly has not met the standard for relying on inherency. Moreover, for the reasons given above, Railsback in view of Gore clearly does not teach or suggest a single field replaceable unit wherein the processor, system memory, network interface, one or more drive controllers, and array of disk drives are packaged as a single field replaceable unit (FRU) so that the processor, system memory, network interface, one or more drive controllers, and array of disk drives are configured not to be individually field serviceable or field replaceable. Furthermore, the references explicitly teach that at least some of these components are not attached to a motherboard. For example, the disk drive array mentioned in Railsback is clearly described as being externally connected to the RaQ 3i server. Similarly, Gore teaches components that are customer serviceable (Gore - col. 5, lines 21-22). Thus, the cited art actually teaches away from Applicants’ claim 2.

In regard to claim 6, the Examiner asserts that as technology is evolving, systems are becoming faster and storage capabilities are continuing to increase in size. Based on this premise, the Examiner states that it would have been obvious for an array of disk drives in a single field replaceable unit to provide storage for at least a quarter of a terabyte of data. The rejection of claim 6 is improper. By considering the future evolution of storage systems, the Examiner is applying an improper timeframe for determining patentability. Patentability must be determined at the time of invention, not according to any future speculation. At the time of Applicants’ invention, conventional wisdom on drive arrays that provided at least a quarter of a terabyte of data was to make each drive replaceable. Thus, at the time of Applicants’ invention, it clearly would not have been obvious to include a drive array providing at least a quarter of a terabyte of data as a single field replaceable unit with a processor, system memory, network interface, and one or more drive controllers.

In response to this argument, the Examiner states that changes in size/range are obvious (citing *In re Rose*) and having drive arrays that provide at least a quarter of a terabyte was known at the time of the invention (citing U.S. Pat. No. 6,161,152). The Examiner has apparently misunderstood Applicants' argument. Applicants are not arguing that having a drive array including this much storage was not known at the time of Applicants' invention. Rather, Applicants' argument is that the prior art does not suggest making this much storage in a drive array part of a single field replaceable unit with a processor, system memory, network interface, and one or more drive controllers such that the processor, system memory, network interface, one or more drive controllers, and array of disk drives are configured not to be individually field serviceable or field replaceable. At the time of Applicants' invention, conventional wisdom on drive arrays that provided at least a quarter of a terabyte of data was to make each drive replaceable. Nothing in the Examiner's response, *In re Rose*, or U.S. Pat. No. 6,161,152 addresses this argument.

In regard to claim 12, contrary to the Examiner's assertions, there is no teaching in Railsback of the RaQ 3i server being configured to issue IP addresses to client machines. Railsback does mention configuring an IP address for the RaQ 3i server, but there is no mention of issuing IP addresses to client machines. Thus, the rejection of claim 12 is improper.

In response to this argument, the Examiner states on p. 15 of the Final Action that this limitation is inherent for the RaQ web server of Railsback. The Examiner also refers to the reference "How Web Servers Work" for the teaching that "each machine on the Internet is assigned a unique address called an IP address" and that a home machine connecting to the Internet has an IP address assigned by the ISP. The Examiner has apparently confused an ISP with a web server. An ISP and a web server are different entities. An ISP provides access to the Internet for a user and may assign an IP address to the user's computer for use in accessing other computers on the Internet, such as a web server. A web server, such as the RaQ 3i server in Railsback, does not typically assign IP addresses to home users. Thus, the "How Web Servers Work" reference cited by the

Examiner actually supports Applicants' argument. The cited art does not teach that Railsback's RaQ 3i web server would issue IP addresses to client machines. Nor would such operation be inherent in Railsback's RaQ 3i web server. In fact, as shown in the "How Web Servers Work" reference, such operation in the prior art is typically performed by ISPs, not by web servers such as Railsback's RaQ 3i web server.

In regard to claim 13, the cited art does not teach that the number of physical disk drives of said array of disk drives is fixed in said single field replaceable unit so that additional physical disk drives cannot be added to said single field replaceable unit in the field. Railsback teaches just the opposite by clearly referring to an internal disk drive expansion location on p. 2. The Examiner refers to the FRUs in Gore. However, as discussed above, the FRUs in Gore are individual electronic components of a systems. Thus, applying the teachings of Gore to those of Railsback would only suggest that the individual disk drives in Railsback could be field replaceable. The combination of Railsback and Gore clearly does not teach having a fixed number of disk drives.

In response to this argument, the Examiner states on p. 16 of the Final Action that "[s]ince the unit disclosed in Railsback in view of Gore is a single field replaceable unit, there cannot be additional physical drives added to the single field replaceable unit in the field, thus indicating a fixed number of disk drives." The Examiner appears to be relying on some sort of theory of inherency. However, "in relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). The Examiner clearly has not met the standard for relying on inherency. Moreover, for the reasons given above, Railsback in view of Gore clearly does not teach or suggest a single field replaceable unit wherein the processor, system memory, network interface, one or more drive controllers, and array of disk drives are packaged as a single field replaceable unit (FRU) so that the processor, system memory, network interface, one or more drive controllers, and array of disk drives are configured not to be individually field serviceable or field replaceable.

Furthermore, Railsback explicitly teaches on p. 2 that “the RaQ 3i has internal space for a second hard drive”. Thus, the number of drives in Railsback is clearly **not fixed**. Similarly, Gore teaches components that are customer serviceable and replaceable (Gore -- col. 5, lines 21-29). Thus, the cited art actually teaches away from Applicants’ claim 13.

In regard to claim 15, for reasons similar to those given above in regard to claim 1, the combination of Railsback and Gore does not teach or suggest a single field replaceable unit (FRU) comprising one or more processors, a network interface coupled to the one or more processors, and an array of disk drives coupled to the one or more processors and the network interface, wherein the array of disk drives is configured to be provided as one or more filesystems through the network interface, wherein the processor, the network interface, and the array of disk drives are configured not to be individually field serviceable or field replaceable.

In regard to claim 16, the combination of Railsback and Gore does not teach or suggest that the array of disk drives within the single field replaceable unit are configured into RAID logical volumes. As discussed above, the RAID array disclosed in Railsback is described as an expansion, not as part of the single field replaceable unit.

In regard to claim 18, arguments similar to those made above in regard to claim 6 apply.

In regard to claim 19, arguments similar to those made above in regard to claim 12 apply.

In regard to claim 20, arguments similar to those made above in regard to claim 13 apply.

In regard to claim 22, the RAID system in Railsback is described as an add-on, not as something that is pre-installed prior to shipping as part of a single filed

replaceable unit. Also, for reasons similar as given above in regard to claim 1, the combination of Railsback and Gore clearly does not teach or suggest replacing the single field replaceable unit as a whole upon failure, wherein said single field replaceable unit has no serviceable internal parts, wherein the single field replaceable unit includes a processor, network interface and array of disk drives as a single field replaceable unit (FRU) so that the processor, network interface, and array of disk drives are configured not to be individually field serviceable or field replaceable. **The Examiner did not respond to Applicants' specific arguments in regard to claim 22.**

In regard to claim 23, for reasons as discussed above, the combination of Railsback and Gore clearly teaches away from the storage capacity of the single field replaceable unit being not individually upgradeable. Gore teaches the replaceability of individual components of a system (which would allow for upgrades) and Railsback specifically teaches the desirability of an additional internal drive bay.

In regard to claim 24, the RAID system in Railsback is described as an add-on, not as part of a single field replaceable unit. Also, for reasons similar as given above in regard to claim 1, the combination of Railsback and Gore clearly does not teach or suggest replacing the single field replaceable unit having an array of disk drives as a whole.

In regard to claim 26, arguments similar to those made above in regard to claim 16 apply.

In regard to claim 28, arguments similar to those made above in regard to claim 6 apply.

In regard to claim 29, arguments similar to those made above in regard to claim 13 apply.

In regard to claim 30, for reasons similar to those given above, the combination of Railsback and Gore clearly does not teach or suggest that each individual field replaceable storage unit is configured so that the one or more processors and the array of disk drives are configured not to be individually field serviceable or field replaceable so that failed ones of the individual field replaceable storage units are replaced in the enclosure as a whole.

In regard to claim 31, for reasons similar to those given above, the combination of Railsback and Gore clearly does not teach or suggest that wherein the processor, system memory, network interface, one or more drive controllers, and array of disk drives are packaged as a field replaceable unit (FRU), wherein the field replaceable unit is sealed to prevent the processor, system memory, network interface, one or more drive controllers, and array of disk drives from being separately field replaceable. To the contrary, Railsback teaches the expandability of its system, and the whole point of Gore is about how to provide a system that can be opened up to replace individual components. **The Examiner did not explicitly address this argument in the Final Action.**

The Office Action further rejected claims 3, 4 and 7 as unpatentable over Railsback in view of Gore and further in view of Lui et al. (U.S. Patent 5,812,754) (hereinafter “Lui”), claim 5 as unpatentable over Railsback in view of Gore and in further view of Lui and Microsoft Computer Dictionary 3rd edition (hereinafter “Microsoft”), claims 8-11 as unpatentable over Railsback in view of Gore in further view of Edmonds et al. (U.S. Patent 6,230,190) (hereinafter “Edmonds”), claim 14 as unpatentable over Railsback in view of Gore in further view of Stalley (U.S. Patent 5,663,868), and claim 17 and 27 as unpatentable over Railsback in view of Gore and in further view of Microsoft. All of these rejections are flawed for at least the reasons given above in regard to the respective independent claims.

Applicants also assert that numerous ones of the dependent claims recite further distinctions over the cited art. However, since the independent claims have been shown

to be patentably distinct, a further discussion of the dependent claims is not necessary at this time.

CONCLUSION

Applicants submit the application is in condition for allowance, and an early notice to that effect is requested.

If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5681-76600/RCK.

Also enclosed herewith are the following items:

- ☒ Return Receipt Postcard
- ☐ Petition for Extension of Time
- ☐ Notice of Change of Address
- ☐ Fee Authorization Form authorizing a deposit account debit in the amount of \$
for fees ().
- ☐ Other:

Respectfully submitted,



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Date: November 29, 2004